

L 61647-65

ACCESSION NR: AP5015597

10^{10} - 10^{17} spin/g, which corresponds to one unpaired spin for 10^{11} - 10^7 anthracene molecules. In all samples, light-excited fluorescence and the kinetics of the photoconductivity drop were studied. The relationships obtained indicate that both effects are due to the same impurity centers. The character of these relationships changes in the range of paramagnetic center concentrations from 10^{11} - 5×10^{12} spin/g.

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, USSR)

SUBMITTED: 15Feb65

ENCL: 00

SUB CODE: 06, NP

NO REF SOV: 001

OTHER: 000

Card 2/2

L 8151-66 EWT(m)/EWP(j)/T RM

ACC NR: AP5027690

SOURCE CODE: UR/0062/65/000/010/1875/1877

AUTHOR: Berlin, A. A.^{44,5}; Cherkashin, M. I.^{44,5}; Kisilitsa, P. P.^{44,5}

ORG: Institute of Chemical Physics, Academy of Sciences SSSR
(Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Polymerization^{1.44,55} of beta-iodophenylacetylene 7

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 10, 1965, 1875-1877 B

TOPIC TAGS: polymerization, catalytic polymerization, polymer, linear polymer, polymerization catalyst

ABSTRACT: The thermal and catalytic polymerization of beta-iodophenylacetylene were investigated to study the effect of different substituents on the polymerization of acetylenic compounds. Thermal polymerization at 150 C and catalytic polymerization with triethylaluminum-titanium chloride complexes (optimum 70 C, using $(C_2H_5)_3Al \cdot TiCl_3$ with Al:Ti = 1:1) gave polymers which were stable to atmospheric oxidation at room temperature but which oxidized at 450-500 C, splitting out iodine and forming three-dimensional structures. Diels-Alder reactions, bromination and IR spectral data helped establish that the first stage of this reaction is polymerization at the triple bond to form

Card 1/2

UDG: 542.952+547.362

L 8151-66

ACC NR: AP5027690

¹⁵
paramagnetic linear polymers having a mean molecular weight up to 2100
and a specific conductance at 300 K of 10^{-11} ohm⁻¹ cm⁻¹. Orig. art.
has: 2 tables.

SUB CODE: OC/ SUBM DATE: 29Jan65/ ORIG REF: 001/ CTH REF: 004

jw
Card 2/2

L 8136-66 EWT(m)/EWP(1)/T RM

ACC NR: AP5025029

SOURCE CODE: UR/0286/65/000/016/0083/0083

AUTHORS: Korolev, G. V.; Kondrat'yeva, A. G.; Berlin, A. A.

ORG: none

TITLE: Method for obtaining polymers on the basis of acrylic compounds. Class 39, No. 173941

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 83

TOPIC TAGS: polymer, polymerization, acrylic polymer, ascorbic acid, inhibitor, monomer

ABSTRACT: This Author Certificate presents a method for obtaining polymers on the basis of acrylic compounds by polymerizing corresponding monomers or oligomers containing a quinone type inhibitor. To increase the rate and depth of polymerization, a reducing agent, e.g., ascorbic acid, is introduced into the reaction mixture.

SUB CODE: OC/ SUBM DATE: 03Aug64

Card 1/1

UDC: 678.744.3:547.475.2

I 6104-66 EWT(1)/EPA(s)-2/EWT(m)/EPF(c)/ETC/ENG(m)/EWP(1)/T/EWA(h)/ETC(m) IJP(c)
ACC NR: AP5028544 DS/WJ/AT/RM SOURCE CODE: UR/0286/65/000/020/0161/0161

INVENTOR: Berlin, A. A.; Dubinskaya, A. M.

ORG: none

TITLE: Preparation of heat-resistant polymers. Class 39, No. 151811

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 161

TOPIC TAGS: heat resistant polymer, semiconducting polymer, ion exchange polymer

ABSTRACT: An Author Certificate has been issued for a preparative method for heat-resistant polymers with ion exchange and semiconductor properties. The method involves polycondensation of halogen substituted quinones with carboxylic acid amides such as acetamide, formamide, or dimethylformamide. [BQ]

SUB CODE: GC, MI/ SUBM DATE: 28Oct61/ ATD PRESS: 4189

Card 1/1

Y 10219-66 ACC NR: AP6000353	RWT(m)/RWP(j)/T/ETG(m) 44.55	WH/RN 44.55	SOURCE CODE: UR/0286/65/000/021/0048/0048 44.55 4/6 15
INVENTOR: Bass, S. I.; Berlin, A. A.; Goldovskiy, Ye. A.; Kuz'minskiy, A. S.			
ORG: none			
TITLE: Method of stabilizing polyorganosiloxanes against thermal-oxidation aging. Class 39, No. 176067 ¹⁵ [announced by the Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy institut tonkoy khimicheskoy tekhnologii)]			
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 21, 1965, 48			
TOPIC TAGS: polysiloxane, stabilizer, oxidation inhibition			
ABSTRACT: An Author Certificate has been issued for a method of stabilizing poly- organosiloxanes to prevent thermal-oxidative aging. To increase the inhibiting ef- fectiveness of the stabilizer, polynuclear aromatic compounds are used, such as anthracene heat treated at 300—450C in vacuum. [SM]			
SUB CODE: 0711/ SUBM DATE: 23Jul64/ ATD PRESS: 4159			
Card 1/1	UDC: 678.84.048.547.672.1		

L 60990-65 EPA(s)-2/EWT(m)/EPP(c)/EPP(n)-2/EWP(j)/T/EWP(z)/EAP(b) PC-4
 TPA/TB-4/T-1/T-2/T-3/T-4/T-5/T-6/T-7/T-8/T-9/T-10/T-11/T-12/T-13/T-14/T-15/T-16/T-17/T-18/T-19/T-20/T-21/T-22/T-23/T-24/T-25/T-26/T-27/T-28/T-29/T-30/T-31/T-32/T-33/T-34/T-35/T-36/T-37/T-38/T-39/T-40/T-41/T-42/T-43/T-44/T-45/T-46/T-47/T-48/T-49/T-50/T-51/T-52/T-53/T-54/T-55/T-56/T-57/T-58/T-59/T-60/T-61/T-62/T-63/T-64/T-65/T-66/T-67/T-68/T-69/T-70/T-71/T-72/T-73/T-74/T-75/T-76/T-77/T-78/T-79/T-80/T-81/T-82/T-83/T-84/T-85/T-86/T-87/T-88/T-89/T-90/T-91/T-92/T-93/T-94/T-95/T-96/T-97/T-98/T-99/T-100/T-101/T-102/T-103/T-104/T-105/T-106/T-107/T-108/T-109/T-110/T-111/T-112/T-113/T-114/T-115/T-116/T-117/T-118/T-119/T-120/T-121/T-122/T-123/T-124/T-125/T-126/T-127/T-128/T-129/T-130/T-131/T-132/T-133/T-134/T-135/T-136/T-137/T-138/T-139/T-140/T-141/T-142/T-143/T-144/T-145/T-146/T-147/T-148/T-149/T-150/T-151/T-152/T-153/T-154/T-155/T-156/T-157/T-158/T-159/T-160/T-161/T-162/T-163/T-164/T-165/T-166/T-167/T-168/T-169/T-170/T-171/T-172/T-173/T-174/T-175/T-176/T-177/T-178/T-179/T-180/T-181/T-182/T-183/T-184/T-185/T-186/T-187/T-188/T-189/T-190/T-191/T-192/T-193/T-194/T-195/T-196/T-197/T-198/T-199/T-200/T-201/T-202/T-203/T-204/T-205/T-206/T-207/T-208/T-209/T-210/T-211/T-212/T-213/T-214/T-215/T-216/T-217/T-218/T-219/T-220/T-221/T-222/T-223/T-224/T-225/T-226/T-227/T-228/T-229/T-230/T-231/T-232/T-233/T-234/T-235/T-236/T-237/T-238/T-239/T-240/T-241/T-242/T-243/T-244/T-245/T-246/T-247/T-248/T-249/T-250/T-251/T-252/T-253/T-254/T-255/T-256/T-257/T-258/T-259/T-260/T-261/T-262/T-263/T-264/T-265/T-266/T-267/T-268/T-269/T-270/T-271/T-272/T-273/T-274/T-275/T-276/T-277/T-278/T-279/T-280/T-281/T-282/T-283/T-284/T-285/T-286/T-287/T-288/T-289/T-290/T-291/T-292/T-293/T-294/T-295/T-296/T-297/T-298/T-299/T-300/T-301/T-302/T-303/T-304/T-305/T-306/T-307/T-308/T-309/T-310/T-311/T-312/T-313/T-314/T-315/T-316/T-317/T-318/T-319/T-320/T-321/T-322/T-323/T-324/T-325/T-326/T-327/T-328/T-329/T-330/T-331/T-332/T-333/T-334/T-335/T-336/T-337/T-338/T-339/T-340/T-341/T-342/T-343/T-344/T-345/T-346/T-347/T-348/T-349/T-350/T-351/T-352/T-353/T-354/T-355/T-356/T-357/T-358/T-359/T-360/T-361/T-362/T-363/T-364/T-365/T-366/T-367/T-368/T-369/T-370/T-371/T-372/T-373/T-374/T-375/T-376/T-377/T-378/T-379/T-380/T-381/T-382/T-383/T-384/T-385/T-386/T-387/T-388/T-389/T-390/T-391/T-392/T-393/T-394/T-395/T-396/T-397/T-398/T-399/T-400/T-401/T-402/T-403/T-404/T-405/T-406/T-407/T-408/T-409/T-410/T-411/T-412/T-413/T-414/T-415/T-416/T-417/T-418/T-419/T-420/T-421/T-422/T-423/T-424/T-425/T-426/T-427/T-428/T-429/T-430/T-431/T-432/T-433/T-434/T-435/T-436/T-437/T-438/T-439/T-440/T-441/T-442/T-443/T-444/T-445/T-446/T-447/T-448/T-449/T-450/T-451/T-452/T-453/T-454/T-455/T-456/T-457/T-458/T-459/T-460/T-461/T-462/T-463/T-464/T-465/T-466/T-467/T-468/T-469/T-470/T-471/T-472/T-473/T-474/T-475/T-476/T-477/T-478/T-479/T-480/T-481/T-482/T-483/T-484/T-485/T-486/T-487/T-488/T-489/T-490/T-491/T-492/T-493/T-494/T-495/T-496/T-497/T-498/T-499/T-500/T-501/T-502/T-503/T-504/T-505/T-506/T-507/T-508/T-509/T-510/T-511/T-512/T-513/T-514/T-515/T-516/T-517/T-518/T-519/T-520/T-521/T-522/T-523/T-524/T-525/T-526/T-527/T-528/T-529/T-530/T-531/T-532/T-533/T-534/T-535/T-536/T-537/T-538/T-539/T-540/T-541/T-542/T-543/T-544/T-545/T-546/T-547/T-548/T-549/T-550/T-551/T-552/T-553/T-554/T-555/T-556/T-557/T-558/T-559/T-560/T-561/T-562/T-563/T-564/T-565/T-566/T-567/T-568/T-569/T-570/T-571/T-572/T-573/T-574/T-575/T-576/T-577/T-578/T-579/T-580/T-581/T-582/T-583/T-584/T-585/T-586/T-587/T-588/T-589/T-590/T-591/T-592/T-593/T-594/T-595/T-596/T-597/T-598/T-599/T-600/T-601/T-602/T-603/T-604/T-605/T-606/T-607/T-608/T-609/T-610/T-611/T-612/T-613/T-614/T-615/T-616/T-617/T-618/T-619/T-620/T-621/T-622/T-623/T-624/T-625/T-626/T-627/T-628/T-629/T-630/T-631/T-632/T-633/T-634/T-635/T-636/T-637/T-638/T-639/T-640/T-641/T-642/T-643/T-644/T-645/T-646/T-647/T-648/T-649/T-650/T-651/T-652/T-653/T-654/T-655/T-656/T-657/T-658/T-659/T-660/T-661/T-662/T-663/T-664/T-665/T-666/T-667/T-668/T-669/T-670/T-671/T-672/T-673/T-674/T-675/T-676/T-677/T-678/T-679/T-680/T-681/T-682/T-683/T-684/T-685/T-686/T-687/T-688/T-689/T-690/T-691/T-692/T-693/T-694/T-695/T-696/T-697/T-698/T-699/T-700/T-701/T-702/T-703/T-704/T-705/T-706/T-707/T-708/T-709/T-710/T-711/T-712/T-713/T-714/T-715/T-716/T-717/T-718/T-719/T-720/T-721/T-722/T-723/T-724/T-725/T-726/T-727/T-728/T-729/T-730/T-731/T-732/T-733/T-734/T-735/T-736/T-737/T-738/T-739/T-740/T-741/T-742/T-743/T-744/T-745/T-746/T-747/T-748/T-749/T-750/T-751/T-752/T-753/T-754/T-755/T-756/T-757/T-758/T-759/T-760/T-761/T-762/T-763/T-764/T-765/T-766/T-767/T-768/T-769/T-770/T-771/T-772/T-773/T-774/T-775/T-776/T-777/T-778/T-779/T-780/T-781/T-782/T-783/T-784/T-785/T-786/T-787/T-788/T-789/T-790/T-791/T-792/T-793/T-794/T-795/T-796/T-797/T-798/T-799/T-800/T-801/T-802/T-803/T-804/T-805/T-806/T-807/T-808/T-809/T-810/T-811/T-812/T-813/T-814/T-815/T-816/T-817/T-818/T-819/T-820/T-821/T-822/T-823/T-824/T-825/T-826/T-827/T-828/T-829/T-830

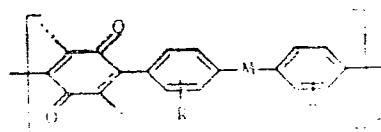
AUTHOR: Durov, A. A.; Liogon'kiy, B. I.; Ragimov, A. V.; G...
A. A.

TITLE: Study of the electric properties of polymeric semiquinones

SOURCE. *Termal fizicheskoy khimii*, v. 37, no. 1, 1967, p. 103.

topic TAGS: polyanilinesemiquinone, polyanilinequinone, electrochrom, electrochromic

had the general formula



It was shown that when primary leukaemias are

Cara 2/2

L 60990-65

ACCESSION NR: AP5019788

electrical resistance decreases, while the activation energy remains practically constant (in polymers which do not contain the sulfonium group). The increase in electrical conductivity resulting from the partial deprotonation of the sulfonium group is observed in the case of polymers containing the sulfonium group.

NO. REF. 005

OTHLA: 102

L 1145-66 EWT(m)/EWP(j)/T RM

ACCESSION NR: AP5023692

UR/0076/65/039/009/2281/2284
541.124/.12

AUTHOR: Bass, S. I.; Berlin, A. A.

TITLE: Mechanism of inhibition of oxidative processes by compounds with conjugated systems

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 9, 1965, 2281-2284

TOPIC TAGS: oxidation inhibition, anthracene, paramagnetic material

ABSTRACT: In order to determine the mechanism governing the activating influence of the addition of paramagnetic particles on anthracene, the consumption of the latter during oxidation of ceresin was studied with and without the addition of a paramagnetic fraction isolated from products of thermal treatment of anthracene and containing 2×10^{18} paramagnetic particles per gram of substance. It was found that the mechanism of the inhibiting action of anthracene differs substantially from that which usually occurs during inhibition of oxidizing processes by known antioxidants: no appreciable loss of anthracene is observed during the induction period, and the duration of the latter is increased. It is postulated that the paramagnetic centers—

Card 1/2

4 1145-66

ACCESSION NR: AP5023692

of local activation play a catalytic part in the activation of anthracene by increasing the probability of $S \rightarrow T$ transitions in the diamagnetic molecules of anthracene which complex with these centers, such molecules being a part of a reactive complex formed with RO_2 -radicals. "The authors thank Academician S. S. Medvedev for his interest in this work and helpful comments during the review of the results." Orig. art. has: 3 figures.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: 13Jun64

ENCL: 00

SUB CODE: GC

NO REF SOV: 006

OTHER: 003

Card 2/2

SOURCE: AN UNCLASSIFIED

tion of certain types of...
The maximum induction periods occurred at equimolar concentrations of the two reactants. Addition of finished adduct

(A) L 13525-66 EWT(m)/EWP(j) RM
 ACC NR: AP6001861 SOURCE CODE: UR/0190/65/007/012/2057/2062
 AUTHORS: Berlin, A. A.; Aseyeva, R. M.; Aseyev, Yu. G.
 ORG: Institute of Chemical Physics AN SSSR (Institut khimicheskoy fiziki AN SSSR)
 TITLE: Effect of halogen in a conjugated chain upon the reactivity of polyvinylene.
 61st report in the series Conjugated Polymers
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2057-2062
 TOPIC TAGS: polyolefin, hydrocarbon, polyvinyl chloride, polymer chemistry, hydro-
 genation, halogenation, maleic anhydride / IKS 14 spectrophotometer
 ABSTRACT: Catalytic hydrogenation, halogenation, addition of maleic anhydride and
 molecular hydrogen to polyvinylene (I) and to polyvinylene chloride (II) were
 studied. These addition reactions were of interest as it was observed that the
 presence of chlorine in the conjugated structure of polyvinylene affects the mecha-
 nism of formation and properties of the carbon skeleton of the macromolecules de-
 rived by thermal treatment. I and II were prepared by dehydrochlorinating polyvinyl-
 and polyvinylidene chloride, using sodium amylate at equimolar ratios, as described
 by A. A. Berlin, R. M. Aseyeva, G. I. Kalyayev, and Ye. L. Frankevich (Dokl. AN SSSR,
 144, 1042, 1962); and R. M. Aseyeva, Yu. G. Aseyev, A. A. Berlin, and V. I.
 Kasatochkin (Zh. strukt. khimii, 6, 47, 1965). Hydrogenation was performed in
 decalin with Ni-Al catalyst, at 1000 for I and at 950 for II, and at 200 atm of H₂.
 Card 1/2 0001 678.01:54+678.742

L 13525-66

ACC NR: AP6001861

Halogenation was achieved in CCl_4 with gaseous chlorine at 200. Addition of maleic anhydride was performed either in xylene in a sealed tube under argon at 1000 or in decalin by refluxing the reagents for 12 hours. All reactions were followed and studied by infrared spectroscopy, using an IKS-14 double beam instrument. It was concluded that the presence of chlorine in the conjugated chain lowers the nucleophilicity of the polyene. Orig. art. has: 3 figures, 2 tables, and 2 equations.

SUB CODE: 07/ SUBM DATE: 12Dec64/ ORIG REF: 002/ OTH REF: 005

Card

2/2

SHMURAK, I.L.; UZINA, R.V.; BERLIN, A.A.

Some factors determining the formation of chemical bonds on the
boundary of adhesive - substrate separation. Kauch. i rez. 24
no.9:23-26 '65. (MIRA 18:10)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i
Institut khimicheskoy fiziki AN SSSR.

BOGUSLAVSKIY, L.I.; SHERLE, A.I.; BERLIN, A.A.

Electrophysical properties of films of polymeric complexes
of tetracyanoethylene with a metal. Zhur. fiz. khim. 38
no.5:1118-1125 My '64. (MIRA 18:12)

1. Institut elektrokhimii AN SSSR i Institut khimicheskoy fiziki
AN SSSR. Submitted March 18, 1963.

BASS, S.I.; BERLIN, A.A.

Mechanism of the inhibition of oxidizing processes by compounds with a conjugated system. Zhur. fiz. khim. 39 no.9: 2281-2284 S '65. (MIRA 18:10)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.

L 30779-66 EWP(j)/EWT(m)/T IJP(o) RM
ACC NR: AP6022139 SOURCE CODE: UR/0080/65/038/012/2804/2807
AUTHOR: Berlin, A. A.; Shau-ch'uan, Huang--Shau-Tsyuan', Khuan; Maloshitsky, A. S. 42
ORG: none 41
TITLE: Synthesis and investigation of the products of heptane and dodecane chlorophosphorylation B
SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 12, 1965, 2804-2807
TOPIC TAGS: chlorinated organic compound, alkylphosphine, phosphorylation, hydrocarbon, oxidation, polycondensation
ABSTRACT: The effect of the $\text{PCl}_3:\text{RH}$ ratio on production of dichlorohydrides of alkylmono- and alkylidiphosphinic acids was studied. The investigation was conducted with heptane and dodecane. The data obtained shows that with an increase in the $\text{PCl}_3:\text{RH}$ ratio, the yield of alkylidiphosphinic acid chloride rises, and the yield of the undistilled residue also rises. This consists of more highly phosphorylated paraffins or their reaction products. The optimal $\text{PCl}_3:\text{RH}$ ratio can be selected from a graph of the yield of phosphorylation products as a function of the $\text{PCl}_3:\text{RH}$ ratio. It must be noted that at low $\text{PCl}_3:\text{RH}$ ratios the rate at which the reaction mixture becomes colored rises sharply. This is evidently related to oxidation of the hydro-
Card 1/2 UDC: 547.217.1/.9+542.944.945.3 0915 0056

L 30779-66

ACC NR: AP6022139

carbon. The capability for polycondensation of the alkylidiphosphinic acids obtained and their conversion into cross-linked polymers in their reaction with metal oxides has been demonstrated in the investigation. Orig. art. has: 1 figure and 2 tables. [JPRS]

SUB CODE: 07 / SUBM DATE: 28Dec63 / ORIG REF: 008 / OTH REF: 005

Card 2/2

JS

L 5102-66 EWT(m)/EPF(c)/EW7(j) RM

ACC NR: AP5027182

SOURCE CODE: UR/0076/65/039/010/2571/2573

AUTHOR: Bass, S. I.; Berlin, A. A.

ORG: Moscow Institute of Fine Chemical Technology im. M. V. Lomonosov (Moskovskiy Institut tonkoy khimicheskoy tekhnologii)

TITLE: Synergistic effects in the inhibition of oxidation processes

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 10, 1965, 2571-2573

TOPIC TAGS: oxidation inhibition, synergy, hydrocarbon, anthracene, phosphite, sulfide

ABSTRACT: A study has been made of the oxidation inhibition in such paraffins as hexadecane or ceresin by synergistic mixtures in which one component is a hydroperoxide reducing agent and the other is a free-radical acceptor. The experiments were conducted with mixtures of phosphites or sulfides with anthracene or anthracene heat treatment products. In phosphite mixtures, the phosphite acts as the reducing agent and anthracene acts as the free-radical acceptor. Phosphites are themselves free-radical acceptors and anthracene frees them for their reducing function. Experiments showed the effectiveness of the synergistic mixtures. This effectiveness can be improved not only by selection of the proper reducing agent, but also by varying the length of reconstituted chain and the paramagnetic particle concentration of the free-radical acceptor. The authors express their gratitude to Academician S. S. Medvedev

Card 1/2

UDC: 542.943+542.978:541.124.2

04010664

L 5102-66

ACC NR, AP5027182

for his attention and interest in this study. Orig. art. has: 4 figures.

0
[B0]

SUB CODE: GC, MT/ SUBM DATE: 19Jun64/ ORIG REF: 007/ OTH REF: 002/ ATD PRESS:
4/33

Cord

2/2

L 13812-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6002470

(A)

SOURCE CODE: UR/0191/66/000/001/0003/0006

AUTHORS: Berlin, A. A.; Kefeli, T. Ya.; Belkin, A. A.; Ragimov, A. V.;
Lilgon'kiy, B. I.; Brikenshteyn, Kh. A.

ORG: none

TITLE: On the catalytic and inhibiting influence of certain polysulfophenyl-quinones on the telomerization condensation reaction

SOURCE: Plasticheskiye massy, no. 1, 1966, 3-6

TOPIC TAGS: polymer, polymerization, catalytic polymerization, high polymer, polymerization kinetics, polymerization rate

ABSTRACT: The catalytic and inhibiting effects of polysulfophenylquinone (obtained by reacting p-benzoquinone with bis-diazotized benzidine-disulfo-2,2' acid (PSFKh-3) in the mole ratio of 1:3) on the condensation telomerization of digo-esteracrylates, dimethylmethacrylate of diethylene glycol (MD) and dimethylmethacrylate-bis-diethyleneglycol)phthalate (MDF-1)¹ were studied. The method used was that described by A. A. Berlin, T. Ya. Kefeli, and G. V. Korolev (Khim. prom., No. 12, 12, 1962). The kinetics of water elimination during the synthesis of MD² in the presence of sulfuric acid and PSFKh-3, and the effect on PSFKh-3³ of the ion exchange properties of synthesized esters were investigated. The experimental

Card 1/2

UDC: 678.764.43:678.044.1:547.567

L 13812-66

ACC NR: AP6002470

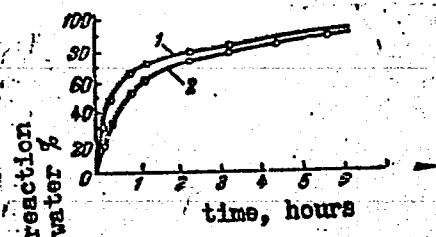


Fig. 1. Kinetics of elimination of water reaction during the synthesis of MD. 1 - in presence of sulfuric acid; 2 - in presence of PSFKh-3.

results are presented in tables and graphs (see Fig. 1). It was found that the highest yield of polymer was obtained for an initial catalyst concentration of 25 wt. % and for catalyst/particle size < 0.25 mm. Orig. art. has: 1 table, 3 graphs, and 1 equation.

SUB CODE: 0711 / SUBM DATE: none / ORIG REF: 012 / OTH REF: 002

PC
Cord 2/2

BERLIN, A.A.; PARINI, V.P. [deceased]; AL'MANBETOV, K.

Activation of cis-trans-isomerization of dimethyl maleinate by
polymers with a conjugate system. Dokl. AN SSSR 166 no.3:595-
597 Ja '66. (MIRA 19:1)

1. Institut khimicheskoy fiziki AN SSSR. Submitted June 13, 1965.

L 21252-66 EWT(M)/EWP(J)/T/ETC(M)-5 WW/MW
 ACC NR: AP6008397 (A) SOURCE CODE: UR/0374/66/000/001/0003/0006

AUTHOR: Babich, V. F.; Sivergin, Yu. M.; Berlin, A. A.; Rabinovich, A. L. 19

ORG: Institute of Chemical Physics AN SSSR, Moscow (Institut khimicheskoy fiziki AN SSSR, Moskva) 8

TITLE: Correlation between the equilibrium modulus of high elasticity and the number of cross-links in rigid network structure polymers 15

SOURCE: Mekhanika polimerov, no. 1, 1966, 3-6

TOPIC TAGS: crosslinking, polymer structure, elastic modulus, temperature dependence, temperature effect, equilibrium

ABSTRACT: The dependence of the equilibrium modulus of the high elasticity of polymers of oligoesteracrylates on temperature was investigated. The modulus was shown to increase with the raising temperature. It was determined that the higher the extent of cross-linking the lower the correlation of experiment with theory concerned. Orig. art. has: 4 figures, 3 formulas, and 1 table. [Based on authors' abstract.] [NT]

SUB CODE: 11, 20/SUBM DATE: 17Jul65/ ORIG REF: 004/ OTH REF: 003/

Cord 1/1 BLG

UDC: 678:539.32

L 39714-66 EWP(j)/EWT(m)/T IJP(c) RM/GD-2

ACC NR: AF6007962

(A)

SOURCE CODE: UR/0191/66/000/003/0005/0007

AUTHOR: Berlin, A. A.; Kaplunov, I. Ya.; Barninov, V. A.

18
B

ORG: none

TITLE: Compatibility of polyvinyl chloride with oligo-ester-acrylates and some properties of their products

SOURCE: Plasticheskiye massy, no. 3, 1966, 5-7

TOPIC TAGS: polyvinyl chloride, acrylic plastic, polymerization, oligomer, solid physical property, electric property

ABSTRACT: A study was made to obtain the optimal formulation of the polymer-oligomer systems (clathrate polymers)¹⁵ having the best physicochemical properties. Using different weight ratios of the reagents, polyvinyl chloride (PVC) and a polymerizable oligomer were polymerized at 125C for 2 hr. The compatibility of the reagents was determined by a nephelometric study of films of the polymers produced. Linear oligomers TGM-3), MGF-9, and MBF-1)¹⁵ and short-chain organosilicon/DEMFS-2m)¹⁵ were mixable with PVC at a wide range of concentrations. Branched oligomers 7-1 and 7-20 could be mixed at low concentration. Clear films were obtained with 30-40% 7-1 or 7-20. The polymers obtained hardened at 140-145C and had a higher liquidus temperature than PVC (due to the cross-linked bonds formed). Their thermal stability was 40-45C higher and their electrical properties were better than those of PVC. When extracted with

Card 1/2

UDC: 678.743.22+678.674

L 37209-66 EWT(m)/EWP(j) RM
ACC NR: AP6014412

SOURCE CODE: UR/0062/66/000/004/0746/0747

AUTHOR: Berlin, A. A.; Gafurov, Kh. M.; Mayorov, N. S.; Parini, V. P. ³²
(deceased) ₂

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: Effect of local activation in zone melting of polynuclear aromatic hydrocarbons

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1966, 746-747

TOPIC TAGS: polynuclear hydrocarbon, anthracene, chemical purity, paramagnetic material, zone melting

ABSTRACT: The possibility of using zone melting to completely purify condensed aromatic hydrocarbons of paramagnetic particles (PP) was investigated. Synthetic anthracene still contained 10^{-4} - 10^{-5} PP per gram after zone melting and PP were found in samples which had no detectable PP before zone melting. Similar observations were made with pyrene and fluorene. Apparently PP are formed in the zone melting process itself, hence zone melting will not free polynuclear aromatic hydrocarbons of PP. Orig. art. has: 1 table and 1 figure.

SUB CODE: 07/ SUBM DATE: 16Aug65/ ORIG REF: 005
Card 1/1 *mep*

UDC: 538.113

L 44180-66

ZAT(b)/AKT(j)/T

RM

ACC NR,

AP6011233

(A)

SOURCE CODE: UR/0413/66/000/006/0074/0074

INVENTOR: Berlin, A. A.; Ostroumova, L. Ye.; Gusev, M. N.; Martsenitsena, Ye. L.

ORG: none

TITLE: Method of obtaining oligomers which can be polymerized. Class 39,
No. 179919

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 74

TOPIC TAGS: oligomer, polymerization, methacrylic acid

ABSTRACT: An Author Certificate has been issued for a method of obtaining oligomers which can be polymerized. A chloroparaffin or a dehydrochloroparaffin is subjected to interaction at 120—140C with a potassium or sodium salt of methacrylic acid in a polar initiating solvent, such as a demethylformamide. [Translation] [NT]

SUB CODE: 07 SUBM DATE: 18Aug64/

Amph

Card 1/1

UDC: 678.6

ACC NR: ~~AP6031746~~ ^{2111M/EWP(j)} LJP(c) ^{WV/RM}

SOURCE CODE: UR/0191/66/000/007/0008/0009

AUTHOR: Korolev, G. V.; Kondrat'yeva, A. G.; Berlin, A. A.

ORG: none

TITLE: Chemical regulation of inhibitor activity in the radical-chain polymerization of monomers and oligomers

SOURCE: Plasticheskiye massy, no. 7, 1966, 8-9

TOPIC TAGS: radical polymerization, chain reaction polymerization, iodine, ascorbic acid, hydroquinone, polymerization kinetics

ABSTRACT: The paper describes some methods for chemically regulating the activity of inhibitors of radical-chain polymerization by introducing into the polymerization system suitable admixtures which increase or decrease the effectiveness of quinone-type inhibitors. The effect of such admixtures on hydroquinone and benzoquinone was determined from the change in the polymerization kinetics of methacrylates (methyl methacrylate, polyester acrylates). Polyester acrylate of brand 7-20 was used in the experiments. The polymerization was carried out at 50°C in the presence of the initiator dicyclohexylperoxydicarbonate (DCP) and at 70°C in the presence of azoisobutyrodinitrile (AD). Iodine admixtures were found to increase the effectiveness of quinone-type inhibitors considerably, whereas ascorbic acid admixtures deactivate the inhibitors almost completely. By treating I₂ as an oxidant and ascorbic acid as a reductant,

Card 1/2

UDC: 578.045

L 08400-67

ACC NR: AP6031746

the interaction of these two agents with the inhibitors can be explained in terms of redox processes. In the case of I_2 , its synergistic effect involves not only an oxidative process, but also the formation of a complex between I_2 and the inhibitor; the effectiveness of this complex is greater than that of the inhibitor alone. Orig. art. has: 3 figures.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 005

Card 2/2 afs

L 32169-66 ENP(j)/EMI(m)/T IJP(c) RM/WM

ACC NR:AP6012139

(A)

SOURCE CODE: UR/0413/66/000/007/0057/0057

40

INVENTOR: Berlin, A. A.; Kefeli, T. Ya.; Filippovskaya, Yu. M.; Sivergin, Yu. M.;
Korolev, V. V.; Machonina, L. I.; Leonov, B. I.

B

ORG: None

TITLE: Preparation of polyacrylate esters. Class 39, No. 180335

SOURCE: Izobreteniya, promyshlennyye obrastay, tovarnyye znaki, no. 7, 1966, 57

TOPIC TAGS: polyester, acrylate, polymerization

ABSTRACT: An Author Certificate has been issued describing a method of preparing polyacrylate esters by low-temperature polymerization in bulk of monomeric and oligomeric acrylate esters in the presence of peroxide initiators. To speed up the process the system benzene peroxide plus polyazophenylene plus filler with a developed surface such as PK-3, K-40 is suggested as the initiator. The polymerization is carried out in the presence of an inhibitor of medium potency, for instance benzoquinone or diphenylamine. [LD]

SUB CODE: 11,07/SUBM DATE: 22Aug62

Card 1/1

UDC: 678.674.2.0

L 46994-66 EWP(j)/EWT(m)/T IJP(c) RM/VV
ACC NR: AP6027275 (A) SOURCE CODE: UR/0191/66/000/008/0018/0021

AUTHOR: Berlin, A. A.; Ignatyuk, A. G.; Kefeli, T. Ya.; Sel'skaya, O. G.; Sivergin, Yu. M.; Komleva, L. K.

ORG: none

TITLE: Xylitol oligoester acrylates and some properties of their polymers

SOURCE: Plasticheskiye massy, no. 8, 1966, 18-21

TOPIC TAGS: acrylate, xylitol, polycondensation, adipic acid, sebacic acid, phthalic anhydride

ABSTRACT: The synthesis and polymerization of oligoester acrylates (OEA) based on xylitol and some properties of products of their curing were studied. The synthesis was carried out by the condensation telomerization method and involved the reaction of xylitol with adipic acid, sebacic acid or phthalic anhydride, with methacrylic acid as the monofunctional telogen, H_2SO_4 or p-toluensulfonic acid as the catalyst and hydroquinone as the inhibitor. As indicated by the amount of water formed by the reaction and by the analysis of physicochemical properties of the synthesized OEA, the polyesterification reaction in toluene does not involve xylitol itself, but its 1,4-monoanhydride (xylitan). The degree of dehydration of xylitol depends on the nature of the catalyst: it was much greater in the presence of H_2SO_4 than in the presence of p-toluenesulfonic acid. The conditions of synthesis of the product of the reaction with

Card 1/2

UDC: 678.674'65'52'28.01:539.2

L 46994-66

ACC NR: AP6027275

phthalic anhydride were studied most thoroughly. The amount of methacrylic acid was found to have a marked effect on the formation of this oligoester and its separation from the reaction mixture. A study of the physicochemical properties of the three cured oligoesters showed that as the flexibility of the oligomer block of the original oligoester increases, the specific impact strength of the polymers rises, and the hardness and bending strength fall off. The oligoesters were found to have a satisfactory thermal stability and resistance to thermal-oxidative degradation. Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 011/ OTH REF: 002

ms
Card 2/2

L 44592-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6013275 (A) SOURCE CODE: UR/0413/66/000/008/0078/0078

31
B

INVENTOR: Berlin, A. A.; Berkman, Ya. P.; Shuter, L. M.

ORG: none

TITLE: Method of obtaining graft copolymers¹ of carboxymethylcellulose¹ and unsaturated monomers. Class 39, No. 180791₁₅

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 78

TOPIC TAGS: copolymer, monomer, copolymerization, polymerization initiator, graft copolymer

ABSTRACT: An Author Certificate has been issued for a method of obtaining graft copolymers of carboxymethylcellulose and unsaturated monomers in the presence of initiators of graft copolymerization reaction in a hydrogen medium. To obtain water-insoluble, film-forming products, carboxymethylcellulose is subjected to preliminary treatment with water-soluble peroxide compounds. The treatment of carboxymethylcellulose by

Card 1/2

UDC: 678.546.11.9-416:678.744.325

L 44592-66

ACC NR: AP6013275

peroxide compounds occurs with the pH of the medium not lower than 8.
[Translation] [NT]

SUB CODE: 11/ SUBM DATE: 10Oct64/

Card 2/2

29m

L 44578-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6015660 (A) SOURCE CODE: UR/0413/66/000/009/0073/0073

INVENTOR: Frunze, N. K. ; Berlin, A. A. ; Braynes, M. Ya. ; Shaydurova, N. K.

ORG: none

TITLE: Method of obtaining compositions suitable for photopolymerization.

Class 39, No. 181280 15

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1986, 73

TOPIC TAGS: photopolymerization, copolymer, polymerization initiator, photosensitivity, oligoether

ABSTRACT: An Author Certificate has been issued for a method of obtaining compositions suitable for photopolymerization using the acrylic copolymer series, an oligorhythmic compound, a polymerization initiator, and a sensitizer. To expand the variety of photosensitive compositions, a butylmethacrylate/copolymer/with methacrylamide is used as the copolymer, and an oligoether such as dimethacrylate-

Card 1/2

UDC: 771.531.678.744.32-134.548.3:66.095.265

L 44578-66

ACC NR: AP6015660

bis-diethyleneglycolphthalate is suggested as the oligorhythmic compound. [Translation] [NT]

SUB CODE: 11/ SUBM DATE: 21Oct63/

Card 2/2 *28m*

L 44389-00 EWT(m)/EWP(j)/T LJP(c) RM

ACC NR: AP6015679 (A) SOURCE CODE: UR/0413/66/000/009/0078/0078

INVENTOR: Korolev, G. V. ; Smirnov, B. R. ; Yarkina, V. V. ; Berlin, A. A.

32
B

ORG: none

TITLE: Preparation of formulations which can be polymerized when exposed to light.
Class 39, No. 181300 ✓

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 78

TOPIC TAGS: photopolymerization, polymerization

ABSTRACT: This Author Certificate introduces a method of preparing formulations suitable for photopolymerization. The formulations contain a polymer base, a compound that can be polymerized and a polymerization initiator. To stabilize the material and to plasticize it temporarily during processing, the compound containing in its chain groups $\begin{array}{c} | & & | \\ -C & -S- & C- \\ | & & | \end{array}$ is suggested as suitable for polymerization. [LD]
[Translation]

SUB CODE: 11/ SUBM DATE: 25Feb65/

Card 1/1 LOM

UDC: 771.531.678.745.6:66.095.265

L 09253-67 EWT(m)/EWP(j) IJP(c) RM/WW
ACC NR: AP6029910 (A)

SOURCE CODE: UR/0413/66/000/015/0086/0087

INVENTORS: Bass, S. I.; Borlin, A. A.; Yarkina, V. V.; Sbinar, L. A. 58

ORG: none

TITLE: A method for imparting heat resistance to hardened phenolaldehyde resins.
Class 39, No. 184431 15

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 86-87

TOPIC TAGS: thermal stability, thermal process, resin, heat resistant plastic

ABSTRACT: This Author Certificate presents a method for imparting heat resistance to hardened phenolaldehyde resins. This is accomplished by adding to them (prior to their hardening) stabilizing compounds capable of interlinking and containing 10^{16} -- 10^{19} paramagnetic particles per gram. To produce high-temperature stabilization (at temperatures on the order of 400C), polyphenyl acetylene or hardened phenolaldehyde resins (heat treated at 300--500C in an atmosphere of an inert gas or in a vacuum) are used as stabilizers.

SUB CODE: 11/ SUBM DATE: 13Feb65

Card 1/1 5/20

UDC: 678.048.9:678.632

L 32756-66 EWT(m)/EWP(j)/T IJP(c) RM/WW

ACC NR: AP6012714

(A)

SOURCE CODE: UR/0190/66/008/004/0699/0702

61
B

AUTHOR: Afonskiy, V. K.; Berlin, A. A.; Yanovskiy, D. M.

ORG: Institute of Organochlorine Products and Acrylates (Institut khlororganicheskikh produktov i akrilatov)

TITLE: Effect of ¹anthracene compounds obtained by thermolysis on thermal and photo-oxidative degradation of polyvinyl chloride

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 699-702

TOPIC TAGS: polyvinyl chloride, polymer, paramagnetic material, pyrolysis, high temperature effect, anthracene

ABSTRACT: A study was made of the effect of the products of anthracene compounds obtained by pyrolysis on thermal and photo-oxidative degradation of polyvinyl chloride. The addition of anthracene treated at 450C has a stabilizing role in polyvinyl chloride degradation. The dependence of the amount of hydrogen chloride liberated during polymer degradation on the additive concentration and on the quantity of paramagnetic particles is of extremal nature. The stabilization effect is decreased with the temperature. The relation between the inhibiting behavior of the anthracene pyrolysis products and the energy of singlet-triplet transition was established. Orig. art. has: 2 figures and 1 table. [Based on authors' abstract.] [NT]

SUB CODE: 11, 07/ SUBM DATE: 28Apr65/ ORIG REF: 010/ OTH REF: 001/

Cord 1/1 JS

UDC: 678.01:54+678.743

L 46149-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6031946

(A)

SOURCE CODE: UR/0080/66/039/009/2035/2038

AUTHOR: Al'shits, I. M.; Anikina, T. A.; Berlin, A. A.; Grad, N. M.; Levitskaya, O. M.; Mudrov, O. A.; Pagasyan, S. A.; Tsubina, Kh. V.

ORG: none

30
B

TITLE: A new oligomeric binder for glass-reinforced flashes

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 9, 1966, 2035-2038

TOPIC TAGS: glass reinforced plastic, binder, resin MA-3, ~~triethylene glycol dimethacrylate, TGM-3, polyethylene glycol maleate phthalate, MS-1~~

ABSTRACT: A new ¹⁵binder for ¹⁵glass-reinforced plastics has been prepared from triethylene glycol dimethacrylate (TGM-3) in which the content of the stabilizer — hydroquinone — was decreased to 0.04% instead of the conventional 0.03 to 0.20%, and from polyethylene glycol maleate phthalate (MS-1¹² resin) by heating the components to 80C and a vigorous stirring. This mixture was prepared in MS-1:TGM-3 ratios of 2:3 and 1:1; the products had viscosities of 50 and 150 centipoises at 20C respectively, which offers an advantage as compared with the viscosity of 250—430 centipoises of MA-3¹² resin (specifications: VTU 30-12044-61¹² of the LSNKh¹² which is used for manufacturing glass-reinforced plastics in the USSR. The mechanical and technological properties of this new binder make possible its use for impregnating glass fabrics and for applying the method of contact molding. The time of gel formation of the new

Card 1/2

UDC: 678

L 46149-66

ACC NR: AP6031946

○
binder can be decreased by changing the composition of the polymerization initiators, e.g., by using methyl ethyl ketone peroxide with an increased amount of the accelerator cobalt naphthenate (7% instead of 4%). Orig. art. has: 2 formulas and 5 tables.
[BN]

SUB CODE: 07, 11/ SUBM DATE: 13Dec65/ ORIG REF: 006/, ATD PRESS: 5087

Card

2/2 *tdk*

2122/-66 EWP(m)/EWP(j)/T LJP(c) RM/WW
ACC NR: AP6009487

SOURCE CODE: UR/0020/66/167/001/0091/0094

AUTHOR: Berlin, A. A.; Matveyeva, N. G.

ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki, Akademii nauk SSSR) 41 B

TITLE: Polymerization and copolymerization of tetracyanoethylene under the effect of polymers with a conjugated system 1.415

SOURCE: AN SSSR. Doklady, v. 167, no. 1, 1966, 91-94

TOPIC TAGS: organic semiconductor, semiconducting polymer, quasiradical polymerization

ABSTRACT: The feasibility has been studied of using paramagnetic conjugated polymers as catalysts in the "quasi-radical" polymerization and copolymerization of low reactivity monomers such as tetracyanoethylene (I), anthracene, naphthacene and pentacene. I was polymerized alone or copolymerized with anthracene, naphthacene, or pentacene. Soluble fractions of polyphenylene or polyanthryl were used as the catalyst in various concentrations so as to vary the unpaired spin concentration. Polymerization was carried out at 200C and 10^{-3} mm Hg. It was found that the polymer or copolymer yield increased with spin concentration. In the case of the copolymerization of I with anthracene, the highest yield was obtained at a I/anthracene ratio of 4/1. The copolymers were black infusible powders insoluble in the common organic

Cord 1/4

I 21557-66

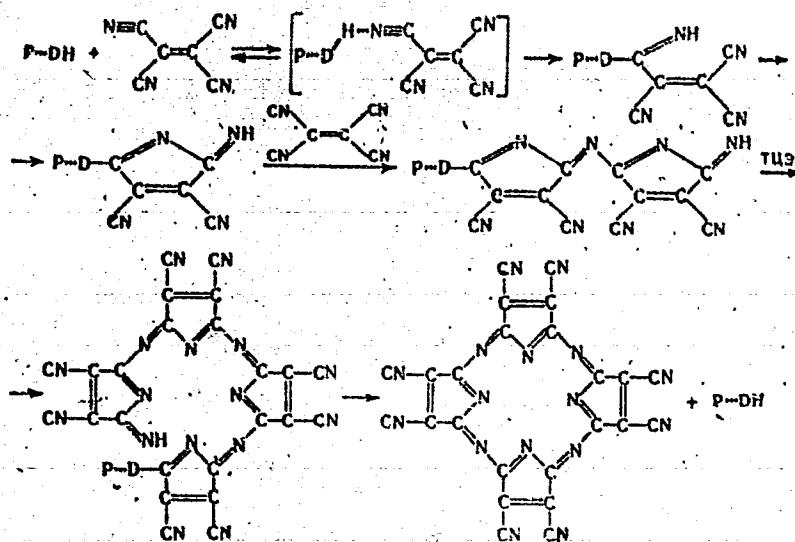
ACC NR: AP6009487

solvents. The copolymers were more stable to thermal-oxidative degradation than the homopolymer: at 350C the homopolymer from I degraded fully, while weight losses in the copolymers only went as high as 30—35%. The electrical conductivity of the copolymers was 5—6 orders of magnitude as high as that of anthracene, i.e., 10^{-9} mho/cm, and had an activation energy of 8—11 kcal/mol. Naphthacene, pentacene, and polyphenylene also copolymerized with I. A mechanism is proposed for the catalysis, which involves charge-transfer complex formation. The reaction may be represented as follows:

Card 2/4

L 21557-66

ACC NR: AP6009487



where P is the polymer fraction with unpaired spins, DH is the diamagnetic polymer homolog; the $P\cdots DH$ notation indicates a charge-transfer complex. It is assumed that numerous conjugated substances (dyes, carotenoids, conjugated polymers) will be

Card 3/4

L 21557-66

ACC NR: AP6009487

0

capable of undergoing quasi-radical polymerization and copolymerization to form new
polymers. Orig. art. has: 2 figures and 1 table. [SM]

SUB CODE: 11, 07 SUBM DATE: 08Aug65/ ORIG REF: 014/ OTH REF: 001/
ATD PRESS: 4219

Card 4/4 BLG

1. 21423-66 EWT(m)/EWP(i)/T/ETC(m)-6 VN/RM
 ACC NR. AP6010120 (A) SOURCE CODE: UR/0190/66/008/003/0540/9547

AUTHOR: Berlin, A. A.; Regimov, A. V.; Liqun'kiy, B. I.; Belova, G. V.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Synthesis and investigation of polyarylenequinones 7,

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 3, 1966, 540-547

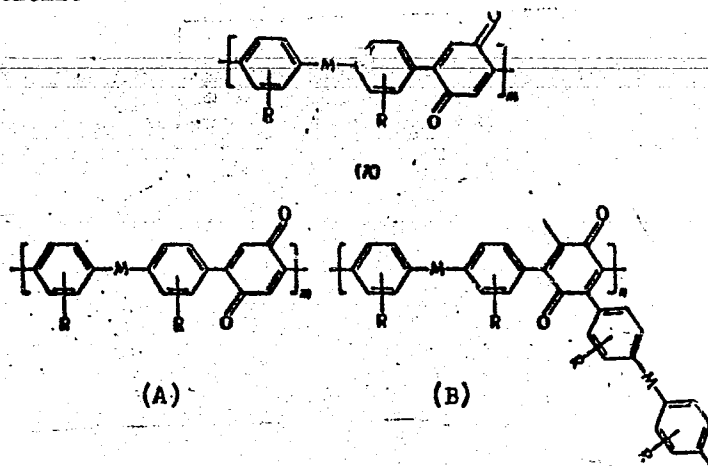
TOPIC TAGS: organic semiconductor, semiconducting polymer, heat resistant polymer, ion exchange resin, redox agent

ABSTRACT: New polyarylenequinones exhibiting redox and ion-exchange properties have been prepared by the reaction of p-benzoquinone with various bisdiazotized aromatic diamines. The diamines used were benzidine 7 (polymer I), o-tolidine (II), 2,2'-benzidinedisulfonic acid (III), and 4,4'-diamino-2,2'-stilbenedisulfonic acid (IV). The polymer had linear (A) or network structures (AB): 44,55.

Cord 1/3 UDC: 541.64+678.01:53

L 21423-66

ACC NR: AP6010120



where M is $-\text{CH}=\text{CH}-$ or absent. Structures A were obtained in the case of equimolar benzoquinone/amine ratios, and structures AB, in the case of excess amine. The polymers were light- to dark-brown powders. I and II were partly soluble in acetone, dimethylformamide, pyridine, nitrobenzene, quinoline, conc. H_2SO_4 , and aqueous alkalis. Sulfonic acids III and IV were soluble or swelled in water, ethyl alcohol, dimethylformamide, and pyridine. Number-average molecular weights of the soluble fractions of I and II were 900—1500. It was shown that the reaction of benzoquinone with salts of aromatic or bisdiaz (as well as diazo) leads to the reduction of part of

Card 2/3

L 21423-66

ACC NR: AP6010120

the quinone groups to hydroquinone groups. The results of thermomechanical and thermogravimetric measurements showed that heating causes further polymerization. The polymers were resistant to thermal-oxidative degradation¹² up to 250--300C and to thermal degradation in an inert atmosphere up to 600--700C. Orig. art. has: 2 figures and 3 tables.

[SM]

SUB CODE: 11/ SUBM DATE: 16Apr65/ ORIG REF: 004/ OTH REF: 005/ ATD PRESS: 4221

Card 3/3

L 23049-66 EWT(m)/EWP(j) WW/RM

ACC NR: AP6012708

SOURCE CODE: UR/0190/66/008/004/0627/0634

AUTHOR: Cherkashina, L. G.; Berlin, A. A.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Synthesis and investigation of certain physicochemical properties of polymeric phthalocyanines

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 627-634

TOPIC TAGS: organic semiconductor, semiconducting polymer, polyphthalocyanine

ABSTRACT: Poly(magnesium phthalocyanine) (I) and its metal-free analog have been synthesized from 1,2,4,5-tetracyanobenzene. Polymer I was prepared by heating 1,2,4,5-tetracyanobenzene, urea, and powdered magnesium under argon at 300C, followed by appropriate purification. The metal-free homolog was prepared from I by treatment with concentrated H₂SO₄. For comparison, poly(magnesium phthalocyanine) was also prepared from pyromellitic acid, which was identical to I in composition. Elemental-analysis, solubility, and IR spectroscopy data suggested that I exists in the form of linear, and planar parquet-like structures. Electrical measurements were conducted with powder samples

Cord 1/2

L 23049-66

ACC NR: AP6012703

at 300K and 10^{-3} mm Hg. For I, electrical conductivity was of the order of 10^{-7} mho/cm (at an activation energy of 7 kcal/mol), which is 2—3 orders of magnitude higher than for metal-free polyphthalocyanine and about 4 orders lower than for poly(copper phthalocyanine). Thermal stability was higher for I than for poly(copper phthalocyanine), with decomposition setting in at 400C. Orig. art. has: 2 tables and 5 figures.

[SM]

SUB CODE: 07, 20/ SUBM DATE: 06Apr65/ ORIG REF: 010/ OTHREF: 009

ATD PRESS: 4234

Card

2/2 OK

L 24295-66 EWT(1)/EWT(m)/EWP(j)/T IJP(c) RM
 ACC NR: AP6009797 SOURCE CODE: UR/0062/66/000/002/0331/0332

AUTHOR: Berlin, A. A.; Gafurov, Kh. M.; Parini, V. P. (Deceased) 50

ORG: Institute of Chemical Physics, Academy of Sciences, SSSR (Institut
khimicheskoy fiziki Akademii nauk SSSR) B

TITLE: The effect of paramagnetic particles on the crystallization
 temperature of materials with a conjugated system

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 2, 1966,
 331-332

TOPIC TAGS: anthracene, phenanthrene, conjugate bond system,
 crystallization, supercooling, paramagnetism, optic property,
 photoelectric property, chemical purity

ABSTRACT: The effect of ^{2/}paramagnetic particles on ^{2/}crystallization and
 other properties of anthracene and phenanthrene was studied. Samples of
 the π -complex of anthracene containing paramagnetic particle
 concentrations of 10^{10} - 10^{11} spin/gm were prepared by thermal treatment
 of the compound. There is little dependence of crystallization
 temperature on paramagnetic particle concentration in the 10^{10} spin/gm
 range. There is general correlation between changes in the

Cord 1/2 UDC: 547.672+542.65 2

L 24295-66

ACC NR: AP6009797

crystallization temperature, optical and photoelectric properties of anthracene and paramagnetic particle concentration. But the degree of supercooling of melts of materials having conjugated systems does not indicate the degree of purity of the melt. Orig. art. has: 1 figure.

SUB CODE: 07, 20/ SUBM DATE: 18Jun65/ ORIG REF: 006/ OTH REF: 001

Card 2/2 FV

L 3881-66 EWP(j)/ENT(m)/I IJP(c) RM/WM
ACC NR: AP6017886

SOURCE CODE: UR/0062/66/000/005/0945/0945

AUTHOR: Berlin, A. A.; Liogon'kiy, B. I.; Shamrayev, C. M.; Belova, G. V. 40
B

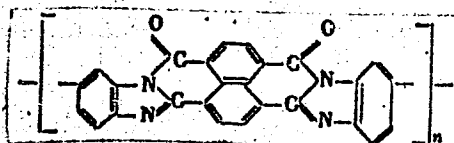
ORG: Institute of Chemical Physics, Academy of Sciences SSSR (Institut khimicheskoy fiziki Akademii nauk SSSR)

TITLE: New high-thermal-stability polymers with semiconducting properties: ¹⁵
poly[aroylenebis(benzimidazoles)] ¹⁵

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 5, 1966, 945 ¹

TOPIC TAGS: organic semiconductor, semiconducting polymer, heat resistant polymer, polybenzimidazole

ABSTRACT: New high-thermal-stability polybenzimidazoles — poly[naphthoylenabis-(benzimidazoles)] — have been prepared which show high electrical conductivity at elevated temperatures:



Card 1/2

UDC: 542.91+541.6+541.67

L 28881-66

ACC NR: AP6017886

The preparation involved the reaction of 1,4,5,8-naphthalenetetracarboxylic anhydride with 3,3'-diaminobenzidine in polyphosphoric acid at 140—200C or in two steps in dimethylformamide. The polymers were soluble in polyphosphoric acid and concentrated H_2SO_4 and remained soluble after vacuum heat treatment at 200C and 10^{-5} mm Hg for 24 hr. The proposed structure was in good agreement with elemental analysis and IR spectroscopy. Viscosity data indicated a high molecular weight. In air, the polybenzimidazoles decomposed at the same temperature ($\sim 550C$) as poly-pyromellitimide but more slowly. They were stable on prolonged (7 hr) heating in air at 400C. The polybenzimidazoles were paramagnetic (10^{17} — 10^{18} spin/g). At 150C, the conductivity of the original samples and of samples heat treated in vacuum ($\sim 10^{-5}$ mm Hg) in the 300—400C range was 10^{-6} mho/cm; 10^{-5} and 10^{-4} mho/cm, respectively [sic]; at 400C, the conductivity was $10^{-2.9}$ mho/cm. Orig. art. has: 1 formula. [SM]

SUB CODE: 07, 20/ SUBM DATE: 30Dec65/ ORIG REF: 001/ OTH REF: 002/ ATD PRESS:

5007

Card 2/2

I 23273-66 EWT(m)/EWP(j)/T/ETC(m)-6 IJP(c) WW/RM
ACC NR: AP6012721

SOURCE CODE: UR/0190/66/008/004/0736/0743

AUTHOR: Berlin, A. A.; Matveyeva, N. G.

ORG: Institute of Chemical Physics AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Tetracyanoethylene polymerization and copolymerization catalyzed by paramagnetic polymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 4, 1966, 736-743

TOPIC TAGS: organic semiconductor, semiconducting polymer, polytetracyanonitrile, quasiradical polymerization

ABSTRACT: The feasibility has been studied of using paramagnetic conjugated polymers as catalysts in the "quasi-radical" polymerization of tetracyanoethylene (I) and its copolymerization with certain other conjugated compounds. I was homopolymerized or copolymerized with anthracene, naphthacene, pentacene, or polyphenylene. Soluble fractions of polyphenylene or polyanthryl were used as the initiator in various concentrations. It was found that in the presence of conjugated polymers I is capable of homo- and copolymerization. The product yield increased with initiator concentration. The molar ratio I/anthracene was 4/1 in the appropriate copolymer. The I-anthracene

Card 1/2

UDC: 66.095.26+678.13+678.745

L 23273-66
ACC NR: AP6012721

copolymer showed an electrical conductivity of 10^{-9} mho/cm at an activation energy of 8-11 kcal/mol. The thermal-oxidative stability of I-polyphenylene copolymers exceeded that of homopolymers of I: they were stable until 350C. A probable mechanism is suggested for the quasi-radical polymerization, based on charge-transfer complex formation at the initiation and propagation steps and activation by paramagnetic particles. Orig. art. has: 3 figures and 3 tables. [SM]

SUB CODE: 07, 20/ SUBM DATE: 07May65/ ORIG REF: 014/
OTH REF: 002/ ATD PRESS: 4235

Card 2/2

ACC NR: AP7004065 SOURCE CODE: UR/0190/67/009/001/0045/0051

AUTHOR: Berlin, A.A.; Cherkashin, M.I.; Kisilitsa, P.P.; Kushnerev, M.Ya.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Study of structural changes in electrical and physical properties of polyphenylacetylene in the course of heat treatment

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 9, no. 1, 1967, 45-51

TOPIC TAGS: pyrolysis, polymer heat effect, polymer structure, electric property, crystallography, phenyl compound, acetylene, conjugated polymer

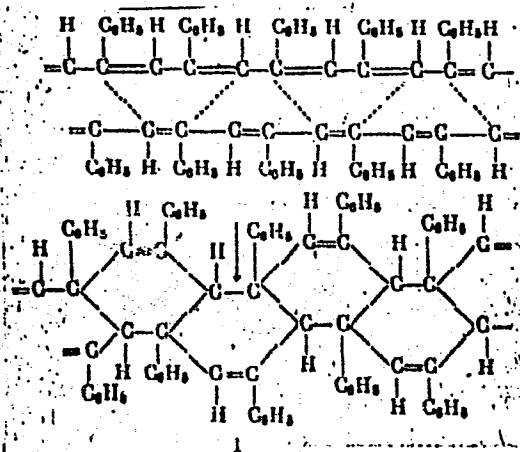
ABSTRACT: A study has been made of the effect of heat treatment at 300—700C in an inert medium on the morphology, chemical structure, electrical properties, and paramagnetic properties of polyphenylacetylene. The electrical measurements were carried out for pressed pellet specimens at 20—400C. It was shown that heat treatment causes substantial changes in electrical, paramagnetic, and crystallographic properties. As the heat treatment temperature (HTT) increases from 330 to 700C, crystallinity and conductivity increase (from 10^{-15} to 10^{-2} mh/cm), activation energy for conduction decreases (from 1.50 ev at HTT = 400C to 0.19 ev at

Card 1/3

UDC: 678.01:53/54+678.76

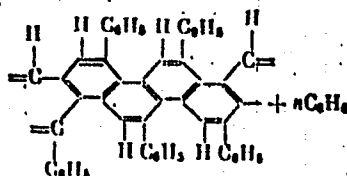
ACC NR: AP7004065

HTT = 700C), and unpaired spin concentration goes through a maximum at 600C. In the 600—700C HTT range, there is a transition from a cubic or pseudocubic lattice to a tetragonal lattice; this transition is accompanied by a sharp change in electrical conductivity (from 10^{-7} to 10^{-2} mho/cm) and paramagnetism. Changes in IR spectra with increasing HTT suggested that three-dimensional network structure formation takes place:



Card 2/3

ACC NR: AP7004065



To determine the effect that the three-dimensional network formation and crystallinity in polyphenylacetylene have on conductivity, the properties of the phenylacetylene-p-diethylbenzene copolymer and the polyphenylacetylene-p-diethylbenzene block copolymer which has a three-dimensional network structure were studied. The crystalline structure was crystalline for the copolymer and amorphous for the block copolymer but both had conductivity of the order of only 10^{-16} mho/cm. This indicates that crystallinity and a three-dimensional network structure are not sufficient conditions for a high conductivity in conjugated polymers. [SM]

SUB CODE: 11, 20/ SUBM DATE: 300ct65/ ORIG REF: 004/ OTH RFF: 003
 ATD PRESS: 5114

Card 3/3

BERLIN, A. I. Dr. Med. Sci.

Dissertation: "The Therapeutic Application of Bromine in Tuberculosis During the Flash Period." Central Inst. for Advanced Training of Physicians. 18 Nov 47.

SO: Vesternyaya Molkva, Nov, 1947 (Project #17336)

BERLIN, A. I.

PA 66/49T65

USSR/Medicine - Tuberculosis

Reactions

Mar/Apr 49

Tuberculosis, Diagnosis

"The Problem of Computing and Recording
Tuberculin Reactions," A. I. Berlin, Clinical
Dept, Ivanovo Oblast Tuberculosis Dispensary,
Faculty Therapeutic Clinic, Ivanovo Med Inst
34 pp

"Prob Tuber" No 2

Berlin discusses his method on subject which is
now being used and verified by experience.
Describes all forms of tuberculosis reactions
which have been developed. Mentions

66/49T65

USSR/Medicine - Tuberculosis

Reactions

Mar/Apr 49
(Contd)

Local and temperature reactions and rashes,
and general reactions of method. Gives
tuberculinogram of patients.

66/49T65

BERLIN, A. I.

BERLIN A. I.

Opyt terapii obostrenii tuberkuleza na osnove uchenia shkoly
I. P. Pavlova o vysshei nervnoi deiatel'nosti. [Therapy of
acute tuberculosis based on Pavlov's theory of the physiology
of the nervous system] Probl. tuberk., Moskva No. 5
Sept-Oct 50 p. 15-22.

1. Of the Tuberculosis Clinic attached to the Faculty Therapeutic
Clinic of Ivanovo Medical Institute (Head — Prof. L. I.
Vilenskiy) and of the Oblast Tuberculosis Dispensary (Head
Physician — Candidate Medical Sciences G. M. Dubitskiy).

BERLIN, A.I., prof.; PETRASH, L.G.

Acid-release function of the stomach during PAS therapy in tuberculosis.
Probl. tub. 35 no.6:57-90 '57. (MIRA 12:1)

1. Iz fakul'tetskoy terapevticheskoy kliniki Ivanovskogo meditsinskogo
instituta i Oblastnogo protivotuberkuleznogo dispansera.

(PARA AMINOSALICYLIC ACID, eff.
gastric acidity in tuberc. ther. (Rus))

(GASTRIC JUICE
gastric, eff. of PAS in tuberc. (Rus))

33922

S/079/62/032/002/007/011
D243/D303

5.3630

AUTHORS: Fel'dman, I.Kh. and Berlin, A.I.

TITLE: Synthesis of stereoisomeric cyclic phosphorus organic compounds

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 2, 1962, 575-579

TEXT: In the present investigation all the theoretically possible 3-dimensional isomers of the cyclic, phosphamide esters of 3-4-dimethyl-5-phenyl - 2-N'-bis-(β -chloroethyl)-amine-2,1,3 -phosphoxazolidine were obtained by condensation of N-bis (β -chloroethyl) dichlorophosphoxamide and optically active d - and l- ephedrine. Cyclic phosphamide stereochemistry, especially the difference in physiological activity between dextro and laevo forms of asymmetric phosphorus organic compounds, is stated to be of great interest for treating certain forms of cancer. The condensation of d-pseudoephedrine and N-bis (β -chloroethyl) dichlorophosphoxamide: a solution of 36.9g. of d-pseudoephedrine in 600 ml. of dry benzene was added, drop by drop, with stirring, over 40-50 minutes,

Card 1/5

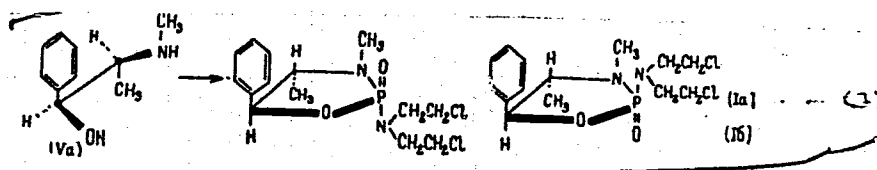
33922

S/079/62/032/002/007/011

D243/D303

Synthesis of stereoisomeric ...

to a solution of 19.3g. N-bis-(β -chloroethyl)-dichlorophosphoxamide in 100 ml. of dry benzene, the reaction temperature not exceeding 30°C. After stirring for 4 hours, the d-pseudoephedrine chlorhydrate precipitate (29.4g) was filtered off, the filtrate vacuum-evaporated and the residue recrystallized frequently for 1-2 days. A solution of the latter in absolute alcohol was diluted with dry ether until it clouded, boiled for 3-5 minutes with wood charcoal and kept in a refrigerator for 24 hours. After filtration and vacuum evaporation the residue was redissolved in benzene and, on adding a small quantity of ether, product Ia Eq.(2) separated out, followed by a mixture of the latter and its diastereoisomer, Ib Eq.(2).



Card 2/5

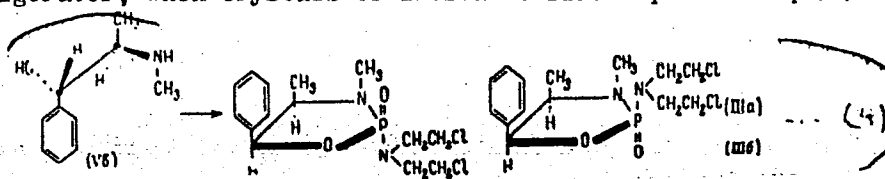
33922

S/079/62/032/002/007/011

D243/D303

Synthesis of stereoisomeric ...

After fractional crystallization from ether 7.9g. of Ia and 7.5g of Ib were obtained. The condensation of d-ephedrine and N-bis-(β -chloroethyl)-dichlorophosphoxamide: a solution of 32.5g. of d-ephedrine in 50 ml. of absolute ether was added, while stirring, over 2 hours to a solution of 17g. N-bis-(β -chloroethyl)-dichlorophosphoxamide in 200 ml. absolute ether. After being kept for 2 hours at 18 C, stirring was continued for 16 hours while the solution boiled. The ether solution was separated from the d-ephedrine chlorhydrate formed, boiled for 10 minutes with wood charcoal, filtered, evaporated to 200-250 ml. and left for 2-3 days in a refrigerator, when crystals of substance IIIa separated Eq.(4).



The mother liquor was diluted with absolute ether and the resultant clear

Card 3/5

33922

Synthesis of stereoisomeric ...

S/079/62/032/002/007/011
D243/D303

solution poured off and evaporated to 50-60 ml. After standing for 10-15 days crystals of IIIa formed again. This cycle was repeated until crystals of IIIb appeared. After frequent crystallization from benzene-ether mixture and from ether 6g. of IIIa and 2.8g. IIb respectively were obtained. The reactions with L-pseudoephedrine, D,L-pseudoephedrine, L-ephedrine and D,L-ephedrine were carried out in a similar way. Details of the products are given. The authors state that the substances obtained are the first examples of optically active phosphorus organic compounds in which there are two asymmetric carbon atoms and an asymmetric phosphorus atom. There are 1 table and 31 non-Soviet-bloc references. The 4 most recent references to the English-language publications read as follows: H.S. Aaron, J. Braun and Th.M. Shryne, J. Am. Chem. Soc., 82, 597 (1960); G.M. Campbell and I.K. Way, J. Chem. Soc., 1960, 5034; M. Green and R.F. Hudson, J. Chem. Soc., 1960, 3129; O.M. Friedman, Proc. Am. Ass. Canc. res. 3, 112, (1960), re. 86.

ASSOCIATION: Leningradskiy khimiko-farmatsevticheskiy institut

Card 4/5

Synthesis of stereoisomeric ...

33922
S/079/62/032/002/007/011
D243/D303

(Leningrad Chemical and Pharmacological Institute)

SUBMITTED: January 5, 1961

X

Card 5/5

FEL'DMAN, I.Kh.; BERLIN, A.I.

Synthesis of stereoisomeric cyclic organophosphorus compounds.
Part 2: Cis- and trans-isomeric derivatives of cyclically bound
phosphorus. Zhur.ob.khim. 32 no.5:1604-1607 My '62.

(MIRA 15:5)

1. Leningradskiy khimiko-farmatsevticheskiy institut.
(Phosphorus organic compounds) (Stereochemistry)

FEL'DMAN, I.Kh.; BERLIN, A.I.

Synthesis of cyclic stereoisomeric organophosphorus compounds. Part 3: Stereospecificity of the reaction of cyclic phosphoramidate ester formation. Zhur.ob.khim. 32 no.10:3379-3381 0 '62. (MIRA 15:11)

1. Leningradskiy khimiko-farmatsevticheskiy institut.
(Phosphoric triamide)

BERLIN, A.L.

RT-793 /Significance of the thermoprecipitin reaction in the praxis of examining plague epizootics/ K voprosu o znachenii reaktsii termopretsipitatsii v praktike obsledovaniia chumnykh epizootii.
Vestnik Mikrobiologii, Epidemiologii i Paraziologii, 9(1): 54-59, 1930.

1. 12335-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Ps-l/Pc-l/Pr-l RM/HW
 ACCESSION NR: AP3000753 S/0020/63/150/003/0580/0583 73
 72

AUTHOR: Dudina, L. A.; Berlin, Al. Al.; Karmilova, L. V.; Yenikolopyan, N. S.

TITLE: Changing the molecular weight by oxidative destruction of polyformaldehyde

SOURCE: AN SSSR. Doklady, v. 150, no. 3, 1963, 580-583

TOPIC TAGS: oxidative destruction, polyformaldehyde

ABSTRACT: In continuation of earlier work by L. A. Dudina, L. V. Karmilova, and N. S. Yenikolopyan (DAN. 150, no. 2, 1963), a study was made to determine whether the O-initiated decomposition of polyformaldehyde does indeed go according to the equation shown in the enclosure. Experimentally a sharp drop in molecular weight was found, such that its dependence on the degree of conversion is representative of the formation of two stable fragments upon decomposition of the molecule. These fragments could be formed either because the O inhibits decomposition of the active center in addition to initiating destruction of the polymer or because of acidolysis of the polymer by the acid from the oxidation process. Calculations also indicated that the above-proposed reaction does not account for the drop in molecular weight. Orig. art. has: 1 figure and 28 equations.

Card 1/31

Instr. of Chemical Physics

BERLIN, Al.A1.; BARKALOV, I.M.; GOL'DANSKIY, V.I.; YENIKOLOPYAN, N.S.

Kinetic of solid-phase polymerization. Dokl. AN SSSR 160 no.5:
1104-1107 F '65. (MIRA 18:2)

1. Institut khimicheskoy fiziki AN SSSR. 2. Chlen-korrespondent
AN SSSR (for Gol'danskiy).

BERLIN, A.M.

Standardization of beaters. A. M. Berlin, K. P. Belavin and P. I. Borinov. Leningrad. Otdel'nyi Sovet Nauch. Ispytaniya Tekh. Obshchestva Tselyulosa-Bumaga. Nauch. Prom. (Problems of Pulp-Paper Production) No. 4: 25 (1935). - Standardization of beaters for reworking of paper and newspaper wastes. Ibid. 26-35. - A comparative discussion of the construction and performance of various types of beaters with illustrations and mathematical treatment. Chas. Mann.

TERENT'YEV, A.P.; KOST, A.N.; BERLIN, A.M.

Syntheses with the aid of acrylic acid nitrile. Part 22. New method
for the synthesis of pyrrolines. Zhur. ob.khim. 25 no.8:1613-1616
Ag '55. (MIRA 9:2)

1. Moskovskiy gosudarstvennyy universitet.
(Pyrroline) (Nitriles)

U S S R .

Sulfonation of some saturated compounds. A. P. Terent'ev, L. A. Yanovskaya, A. N. Ierlin, and E. I. Borison. *Vestnik Akad. Nauk S. S. R. Fiz.-Mat. i Estestv. Nauk* No. 4, 117-20 (1953); cf. C. A. 45, 8415g. — Different methods of sulfonation of the following were investigated: MeNO₂ (I), nitrocyclohexane (II), MeCN (III), MeCH₂CN (IV), AcOEt (V), n-CO₂Et (VI), and EtCO₂Et (VII); PhCO₂H (VIII), Me₂CCH₂CN (IX), and CH₃(CO₂Et)₂ (X). Pyridine-SO₂ did not sulfonate the above even at 150°. SO₂ soln. with I at first gave a homogeneous, transparent liquid, which suddenly underwent a violent reaction with evolution of CO₂, NO₂, and SO₂. The following 3 reagents in (CH₂Cl)₂ gave variable results: (a) SO₂; (b) pyridine-SO₂, prepd. by adding SO₂ to pyridine-SO₂ under (CH₂Cl)₂; and (c) dioxane-SO₂. The products as Ba salts and the yields in % from a, b, and c were as follows: I, (C₆H₅O₂NS)₂Ba, 14.3, 4, 6; II, (C₆H₁₀O₂NS)₂Ba (sic), 23.5, 22, 20; III (C₄H₉O₂NS)₂Ba·H₂O, 35, 28, 70; IV (C₅H₁₁O₂NS)₂Ba·2H₂O, 7.7 g. from 4 g. IV, 80, —; V C₄H₉O₂S₂Ba, 45, quant., quant.; VI C₆H₁₃O₂S₂Ba, 48, quant., —; VII C₆H₁₃O₂S₂Ba, 15, —, quant.; VIII (C₆H₅O₂NS)₂Ba·2H₂O, 12.7 g. from 7 g. VIII, quant., —; IX and X with c have yields of 23 and 50%, resp. All Ba salts were H₂O-sol. Those of I and II did not hydrolyze in boiling water; the salts of the nitriles hydrolyzed in boiling H₂O to give amides, in alk. solus. to give NH₃. The ethers gave diacids very readily; the monoacids could be obtained only with the greatest care, the salts were difficult to isolate in the pure state.

I. Benicowitz

Preparation of soluble modification of keratin

to be for 1 hr., the result of the following reaction:
 $R-S-S-R \xrightarrow{Na_2S} R-SNa \xrightarrow{Na_2S} R-SNa$ (sol. Na salt of II). Pure prep. of II are obtained by treating Na salts of I with conc. HCl and washing the II prep. with dil. HCl until free from S²⁻ and Cl⁻. The II prep. are sol. in 1-3% NaOH, 5-10M urea, and 10-30% NH₄OH. I of feathers is more readily transferred into II than I of hoofs, horns, etc. Also the particle size of the keratin material affects the yield of II. High concn. of Na₂S (20%) decreases the yield of II also. Monitoring of I.

By treating sol. II solns. with NaOH, the yield of II is increased. The yield of II is also increased by treating with NaOH.

BERLIN, A. M.

53700

82101
S/062/60/000/07/04/007
B015/B054

AUTHORS: Nesmeyanov, A. N., Nogina, O. V., Berlin, A. M.,
Kudryavtsev, Yu. P.

TITLE: Chemical Transformations of Dialkoxy Titanium Oxides ¹

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1960, No. 7, pp. 1206-1214

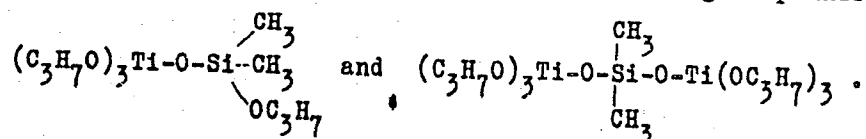
TEXT: The authors describe the chemical properties of dialkoxy titanium oxides. They continued the investigation of deposition to the $\text{Ti} = \text{O}$ bond, studied the etherification reactions, and found the substitution of alkoxyls by halogens as well as a substitution reaction of the oxygen bound to titanium with two chlorine atoms. They obtained the first compounds of a hitherto unknown series of titanium-containing organic compounds, i.e., ethoxy-, n-propoxy-, and n-butoxy titanium oxide chlorides. By the action of chlorine on di-n-propoxy- and diisobutoxy titanium oxides, they produced the compounds $\text{Cl}_2\text{TiO} \cdot 2\text{n-C}_3\text{H}_7\text{OH}$ and $\text{Cl}_2\text{TiO} \cdot 2\text{i-C}_4\text{H}_9\text{OH}$. On the reaction of dialkyl dichloro silanes with dialkoxy titanium oxides, the following exchange of oxygen with two chlorine atoms takes place:

Card 1/2

Chemical Transformations of Dialkoxo Titanium
Oxides

82101
S/062/60/000/07/04/007
B015/B054

$(n-C_3H_7O)_2TiO + Cl_2SiR_2 \longrightarrow (n-C_3H_7O)_2TiCl_2 + [OSiR_2]_x$. A similar reaction takes place by the action of tetra-n-propoxy silane on the compound $Cl_2TiO \cdot 2n-C_3H_7OH$, namely $Cl_2TiO \cdot 2n-C_3H_7OH + (C_3H_7O)_4Si \longrightarrow Cl_2Ti(OC_3H_7)_2 \cdot n-C_3H_7OH + n-C_3H_7OH + [OSi(OC_3H_7-n)_2]_x$. By the linkage of dimethyl di-n-propoxy silane with di-n-propoxy titanium oxide, the following compounds were obtained:



There are 8 references: 7 Soviet and 1 British.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk
SSSR (Institute of Elemental-organic Compounds of the
Academy of Sciences, USSR)

SUBMITTED: . January 23, 1959

Card 2/2

83900

S/020/60/134/003/013/020
B016/B054

5.3700

AUTHORS: Nesmeyanov, A. N., Academician, Nogina, O. V., and Berlin,
A. M.

TITLE: Interaction of Cyclopentadienyl Sodium¹ With Alkoxy Titanium
Chlorides¹

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 3,
pp. 607-608

TEXT: The authors investigated the reactions of cyclopentadienyl sodium with alkoxy titanium chlorides, and isolated mono- π -cyclopentadienyl derivatives of titanium: cyclopentadienyl-triethoxy- and tri-n-propoxy titanium (see Diagram). They are colorless liquids distillable in vacuo and very sensitive to air moisture. The authors indicate the established and calculated yields and molecular weights of the two derivatives. As opposed to the ordinary alkoxy derivatives of titanium, the π -cyclopentadienyl-trialkoxy derivatives are not associated in solutions, not even at a concentration of 1.7 mole%. The molecular weight of $C_5H_5Ti(OC_2H_5)_3$, cryoscopically determined in benzene solution, corresponds

Card 1/3

83900

Interaction of Cyclopentadienyl Sodium With
Alkoxy Titanium Chlorides

S/020/60/134/003/013/020
B016/B054

to that of the monomeric compound. The authors proved the structure of π -cyclopentadienyl-triethoxy- and tri-n-propoxy titanium by conversion into the known (Refs. 7,8) cyclopentadienyl-titanium trichloride (see Diagram). Further, the authors allowed ethoxy-titanium trichloride to react with cyclopentadienyl sodium, and determined and calculated the physical constants of $(C_5H_5)_2Ti(OC_2H_5)Cl$. The π -cyclopentadienyl-trialkoxy derivatives of titanium are decomposed by alcohols at 70-80°C within 1 h, while corresponding tetraalkoxy titanium and cyclopentadiene are formed. The latter was isolated as cyclopentadienyl thallium. By reactions of π -cyclopentadienyl-tri-n-propoxy titanium with acetyl chloride, the authors obtained mixed chloride alcoholates of π -cyclopentadienyl titanium: 1) cyclopentadienyl-di-n-propoxy-titanium chloride which is disproportionated by vacuum distillation; 2) cyclopentadienyl-n-propoxy-titanium dichloride. Both compounds are greenish-yellow, viscous liquids decomposing under the action of air moisture, but still storable at lower temperatures. There are 8 references: 2 Soviet and 2 US.

X

Card 2/3

83900

Interaction of Cyclopentadienyl Sodium With
Alkoxy Titanium Chlorides

S/020/60/134/003/013/020
B016/B054

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk
SSSR (Institute of Elemental-organic Compounds of the
Academy of Sciences, USSR)

SUBMITTED: June 9, 1960

Card 3/3

5.3700 2229, 1164, 1282

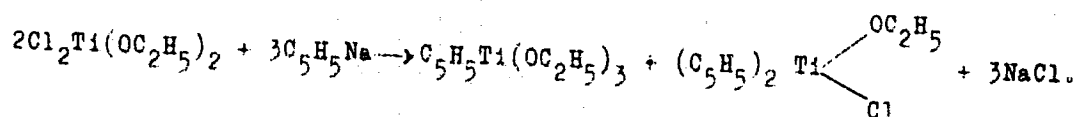
23589
S/062/61/000/005/004/009
B118/B208

AUTHORS: Nasmeyanov, A.N., Nogina, O. V., and Berlin, A. M.

TITLE: Mono- π -cyclopentadienyl derivatives of titanium

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5. 1961, 804 - 807

TEXT: The authors studied the reaction of sodium cyclopentadienyl with diethoxy-titanium dichloride



The separated liquid cyclopentadienyl-triethoxy-titanium which was analytically confirmed is not associated in solution, contrary to the common alkoxy-titanium derivatives. Its molecular weight, cryoscopically determined in benzene, corresponds to that of the monomer compound, even in a concentration of 1.7 mole %. Its structure was confirmed by conversion with acetyl chloride to cyclopentadienyl titanium trichloride $\text{C}_5\text{H}_5\text{TiCl}_3$.

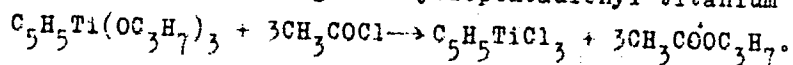
Card 1/4

23589

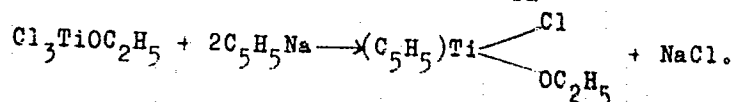
Mono- π -cyclopentadienyl...

S/062/61/000/005/004/009
B118/B208

Its melting point is by 20°C higher than that found by R. D. Gorsich (see below). The second yellow, crystalline product of the above reaction corresponds to dicyclopentadienyl titanium ethoxy-chloride. To obtain only cyclopentadienyl trialkoxy-titanium in the reaction of sodium cyclopentadienyl with alkoxy titanium chlorides, tri-n-propoxy-titanium chloride was used as titanium derivative, which gave, as was expected, cyclopentadienyl-tripropoxy-titanium $C_5H_5Ti(OC_3H_7)_3$ in a yield of 96 %. With acetyl chloride the latter gives cyclopentadienyl titanium trichloride:



The reaction of sodium cyclopentadienyl with ethoxy-titanium trichloride took place according to the formula



The attempt of an ester interchange of cyclopentadienyl triethoxy-titanium with propyl alcohol was unsuccessful, as this alcohol converts this

Card 2/4

Mono- π -cyclopentadienyl...

23589
S/062/61/000/005/004/009
B118/B208

π -cyclopentadienyl compound to tetrapropoxy-titanium (C_3H_7O)₄Ti under mild conditions. Ethyl alcohol reacts similarly forming tetraethoxy-titanium (95 % yield) and cyclopentadiene (97 % yield, in the form of thallium cyclopentadienyl). To obtain mixed chloride alcoholates of π -cyclopentadienyl titanium, $C_5H_5Ti(OR)Cl_2$ and $C_5H_5Ti(OR)_2Cl$, π -cyclopentadienyl propoxy-titanium was allowed to react with acetyl chloride (1:2 and 1:1), where $C_5H_5Ti(OC_3H_7)Cl_2$ and $C_5H_5Ti(OC_3H_7)_2Cl$, respectively, resulted. The reaction products are green-yellow viscous liquids, not stable to atmospheric moisture, but stable when stored at $-5^\circ C$. There are 11 references: 3 Soviet-bloc and 8 non-Soviet-bloc. The 4 references to English-language publications read as follows: C.L. Sloan, W. A. Barber, J. Amer. Chem. Soc. 81, 1364 (1959); M. A. Lynch, I. C. Brantley, Chem. Abstr. 52, 11126 (1958); A. K. Fischer, G. Wilkinson, J. Inorgan. Nuclear Chem. 2, 149 (1956); R. D. Gorsich, J. Amer. Chem. Soc. 80, 4744 (1958).

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elemental-Organic Compounds of the Academy of Sciences USSR)

Card 3/4

NESMEYANOV, A.N.; NOGINA, O.V.; BERLIN, A.M.; GIRSHOVICH, A.S.; SHATALOV, G.V.

Acyl and alkoxy derivatives of bis-(cyclopentadienyl)titanium and
the refraction increment of the $-C_5H_5Ti$ group. Izv. AN SSSR
Otd.khim.nauk no.12:2146-2151 D '61. (MIRA 14:11)

1. Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR.
(Titanium compounds)

KORSHAK, V.V.; KRONGAUZ, Ye.S.; BERLIN, A.M.

Organophosphorus polymers with P - N bonds. Izv. AN SSSR. Otd.
khim. nauk no. 8: 1412-1416 ag '62. (MIRA 15:8)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Phosphorus organic compounds) (Polymers)

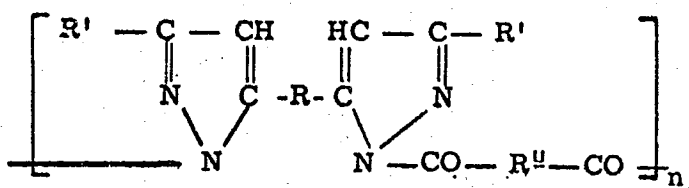
BERLIN, A.M.

AID Nr. 982-10 4 June

SYNTHESIS OF POLYPYRAZOLES (USSR)

Korshak, V. V., Ye. S. Krongauz, A. M. Berlin, and P. N. Gribkova.
IN: Akademiya nauk SSSR. Doklady, v. 149, no. 3, 21 Mar 1963, 602-605.
S/020/63/149/003/020/028

Four polypyrazoles (I) with alternating pyrazole rings in the backbone, of the type




Card 1/5

AID Nr. 982-10 4 June

SYNTHESIS OF POLYPYRAZOLES [Cont'd]

S/020/63/149/003/020/028

where

No.	R	R'	R''	m.p., °C	Reaction temperature and pressure, °C/mm Hg
1	$C_6H_4-O-C_6H_4$	CH_3	$(CH_2)_4$	210-220	200-210/1
2	$C_6H_4 (CH_2)_2 C_6H_4$	CH_3	$(CH_2)_4$	218-225	200/10 ⁻⁴
3	$(CH_2)_8$	C_6H_5	$(CH_2)_4$	100-120	225-235/1
4	$C_6H_4 (CH_2)_2 C_6H_4$	CH_3		260-280	250/1

have been synthesized for the first time by the reaction of bis(diketones) of the type $R' COCH_2CO-R-COCH_2COR'$ (II) with dicarboxylic acid dihydrazides

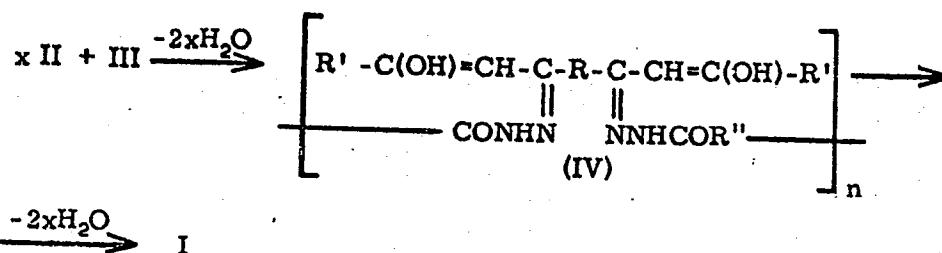
Card 2/5

AID Nr. 982-10 4 June

SYNTHESIS OF POLYPYRAZOLES(Cont'd)

8/020/63/149/003/020/028

of the type $\text{NH}_2\text{NHCO-R''-CONHNH}_2$ (III). Polymers I are formed as a result of pyrazole ring closure (polycyclization) which occurs in two steps as follows:



The first step is the formation of a polyhydrazone (IV) from an equimolar mixture of II and III in boiling absolute ethanol. Compounds IV are green powders soluble in common organic solvents and do not have a sharp melting point. The reduced viscosity of 0.5% IV in cresol was as high as 0.4. The second step of the reaction is the ring closure of IV to form I in quantitative

Card 3/5

AID Nr. 982-10 4 June

SYNTHESIS OF POLYPYRAZOLES [Cont'd]

S/020/63/149/003/020/028

yields when IV is heated for 3 to 5 hrs at its melting point in an N_2 atmosphere under reduced pressure. Polymers I are yellow powders of mol. wt. 9200, soluble in cresol, dimethylformamide, concentrated H_2SO_4 , and formic acid. Upon ring closure the polymer chain of IV decreases in length, causing a drop of reduced viscosity in cresol from 0.4 to 0.1. It is noted that the synthesis of I can be achieved in one step by the reaction of bis(4-acetoacetylphenyl) ethane with adipic acid dihydrazides in boiling benzyl alcohol. The structures of I and IV were determined by elemental analysis, IR and UV spectroscopy, and analysis of their alkaline or acid hydrolysis products. In the UV spectra of I and IV obtained from sebacyldiacetophenone, a bathochromic shift of 40 m μ was observed with respect to 4,4'-bis[3-(5-methyl-N-acetylpyrazolyl)]diphenylethane and 4,4'-bis(acetoacetyl)-diphenylethane acetylhydrazone. Prolonged

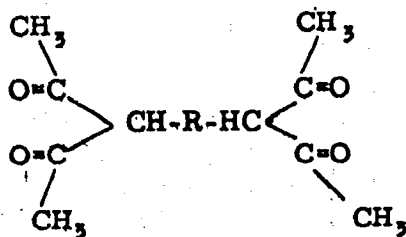
Card 4/5

AID Nr. 982-10 4 June

SYNTHESIS OF POLYPYRAZOLES [Cont'd]

S/020/63/149/003/020/028

treatment of polymers I with concentrated H_2SO_4 yielded a mixture of unidentified sulfonated products. Basic hydrolysis of I or IV in an aqueous 25% KOH solution boiling for 12 hrs caused backbone degradation. Bis(diketones) of the structure



where R = -, or CH_2 , form polyhydrazones which could not be converted to the polypyrazoles. [NI]

Card 5/5

KORSHAK, V.V.; KRONGAUZ, Ye.S.; BERLIN, A.M.

New method for the production of polypyrazoles. Dokl. AN SSSR 152
no.5:1108-1110 O '63. (MIRA 16:12)

1. Institut elementoorganicheskikh soedineniy AN SSSR. 2. Chlen-
korrespondent AN SSSR (for Korshak).

ACCESSION NR: AP4042875

S/0062/64/000/007/1281/1288

AUTHOR: Korshak, V. V.; Krongauz, Ye. S.; Berlin, A. M.; Gribkova, P. N.; Sheina, V. Ye.

TITLE: Synthesis of polymers for the polycyclization reaction.
Communication 1. Polypyrazoles

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1964,
1281-1288

TOPIC TAGS: polymer, heat resistant polymer, polyhydrazone, polypyrazole, bis-(β -diketone), dicarboxylic acid dihydrazide, polycyclization reaction, polypyrazole structure, polypyrazole property

ABSTRACT: Polymers containing pyrazole rings have been synthesized in an attempt to produce new polymeric materials with improved heat resistance and chemical stability. Polypyrazoles were synthesized from bis-(β -diketones) of the $R'COCH_2CO-R-COCH_2COR'$ type and dihydrazides of dicarboxylic acids. The reaction, designated as polycyclization, proceeds in two steps: 1) formation of polyhydrazones by the reaction of the carbonyl oxygen of the ketone with the end amine

Card 1/3

ACCESSION NR: AP4042875

group of the hydrazide, which is accompanied by separation of water, and 2) formation of polypyrazoles by separation of a water molecule and closing of the ring. Polyhydrazones are prepared by heating equimolar amounts of the initial materials in absolute ethanol for 10—36 hr. Polypyrazoles are formed by heating polyhydrazones at 200—250C in nitrogen at 1—2 mm Hg for 3—5 hr. Polypyrazoles are yellowish powders soluble in cresol, dimethylformamide, and concentrated sulfuric and formic acids. They melt with decomposition at 220—260C, and thus do not exhibit the expected heat resistance. A polypyrazole was synthesized in one step by reacting 4,4'-bis(acetoacetyl)diphenylethane with the dihydrazide of adipic acid in boiling benzyl alcohol. Attempts to synthesize polypyrazoles in melts failed. From a study of the properties and structure of the synthesized polypyrazoles it was concluded that changes in the structure of the polymer backbone with the aim of increasing its rigidity will increase the melting point of the polypyrazoles. Orig. art. has: 2 tables.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR (Institute of Organoelemental Compounds, Academy of Sciences SSSR)

Card 2/3

ACCESSION NR: APh040487

S/0190/64/006/006/1078/1086

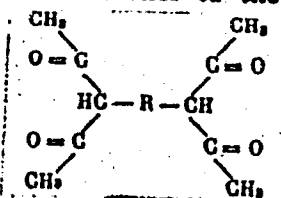
AUTHORS: Korshak, V. V.; Krongauz, Ye. S.; Berlin, A. M.

TITLE: Synthesis of polymers by the polycyclization reaction. 5. Polypyrazoles

SOURCE: Vyssokomolekulyarnyye soyedineniya, v. 6, no. 6, 1964, 1078-1086

TOPIC TAGS: polycyclization reaction, branched diketone, adipic acid dihydrazide, keto enol tautomerism, polypyrazole, polyhydrazone

ABSTRACT: This is a continuation of an earlier work by the authors and P. N. Gribkova (Dokl. AN SSSR, 149, 602, 1953 [Abstracter's note: 1963?]) on the interaction of bis-(β -diketones) with the dihydrazide of adipic acid (DAA). The present investigation differed from the previous one in that instead of linear diketones it involved branched diketones of the type



Card 1/3

ACCESSION NR: AP4040487

where the R is either absent or represents CH_2 , $\text{CH}_2\text{C}_6\text{H}_4\text{CH}_2$, $\text{CH}_2\text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{CH}_2$, or $\text{CH}_2\text{C}_6\text{H}_4\text{OC}_6\text{H}_4\text{CH}_2$. The synthesis of these monomers with DAA was conducted by heating equimolecular quantities of the reactants either in absolute ethanol or in a melt for periods up to 10 hours at 80-170°C. The obtained polyhydrazones or polypyrazoles were analyzed and their melting point, viscosity (in cresol or sulfuric acid), and infrared spectra were recorded. It was found that the reaction of tetraacetyldiethylbenzol-, of 4,4'-bis-(2",2"-diacetoethyl)diphenyl-, and of 4,4'-bis-(2",2"-diacetoethyl)diphenyloxide with DAA yielded polypiperazoles, while the other diketones produced polyhydrazones. In the opinion of the authors, the composition reactivity of the end product of the reaction is determined by the keto-enol tautomerism of the original diketones and by their cis- or trans-configuration. The keto form led directly to polypyrazoles, the trans-enol configuration yielded only polyhydrazones, while the cis-enol form yielded polypyrazoles through the polyhydrazone intermediate stage. V. E. Sheina supplied the tetraacetylpropane and carried out its purification. Orig. art. has: 3 tables and 4 formulas.

ASSOCIATION: Institut elementoorganicheskikh soedineniy AN SSSR. (Institute of

Card 2/3